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THE TRIDIMENSIONAL THEORY OF FEELING¹

By E. B. TITCHENER

A lecturer who had expounded Wundt's elementary doctrine of feeling in the year of grace 1893 would have called attention to two principal points: the status of feeling in consciousness, and the number and nature of the affective qualities. Feeling, Wundt says in the fourth edition of the *Physiologische Psychologie*, is a third attribute of sensation, "eine dritte Eigenschaft der Empfindung." "Neben Intensität und Qualität begegnet uns mehr oder minder ausgeprägt in jeder Empfindung ein drittes Element . . . Wir nennen diesen dritten Bestandtheil der Empfindung den *Gefühlston* oder das *sinnliche Gefühl*." And feeling or affective tone ranges between qualitative opposites, which "wir als *Lust-* und *Unlustgefühle* bezeichnen." Pleasantness and unpleasantness are the ultimate simple forms of sense-feeling; the irreducible qualities of the pure affective tone which is immanent in the simple sensation. At the same time, the terms 'pleasantness' and 'unpleasantness' are not adequate to describe the affective tone of any and every sensation that we obtain by psychological analysis. The qualities of the higher senses, sight and hearing, play an important part in the compound ideas which appeal to the æsthetic side of our nature. Probably for this reason, their affective coloring is approximately, *annähernd*, identical with that of such compound ideas; they have taken on a *Stimmungscharakter*, "der nicht mehr schlechthin auf Lust und Unlust zurückgeführt werden kann, sondern in andern, in gewissen Affecten deutlicher ausgeprägten Gegensätzen einen adäquateren Ausdruck findet." Tones, *e. g.*, may be grave or cheerful; colors may be calming or exciting. The passage from pure affective tone, pleasantness or unpleasantness, to these æsthetic, emotional shades of feeling may be traced through the series of the senses. Touch and the common sensations show pleasantness-unpleasantness with only a trace of "qualitative Färbung;" tastes and smells are predominantly pleasant or unpleasant, but nevertheless admit of "verschiedenartigere Gefühlsfärbungen." Tones and colors, which are strongly pleasant or unpleasant to children and savages, have almost lost these attributes for the civilised adult,—though even for us the seriousness of deep

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tones and of black surfaces leans towards unpleasantness, and the excitement of high tones and of white towards pleasantness, —and have assumed an affective coloring whose general affinity to pleasantness-unpleasantness is, in extreme cases, proved only by its movement between qualitative opposites.

That, then, was Wundt's doctrine, taken at the purely descriptive level: sensations with an immanent attribute of pleasantness-unpleasantness, the original simplicity of which appears clearly enough in the lower sense-departments, but in the higher is obscured by æsthetic or quasi-æsthetic reference.

Now suppose that, as the novelists say, three years have elapsed, and that the same lecturer is discussing the same subject in 1896. He has in his hands the first edition of Wundt's *Grundriss der Psychologie*. And there he reads of "zwei Arten psychischer Elemente, die sich als Producte der psychologischen Analyse ergeben, . . . Empfindungselemente oder Empfindungen [und] Gefühlselemente oder einfache Gefühle." The constitutive attributes ("unerlässliche Bestimmungsstücke) of sensation are quality and intensity. Affection, too, possesses these attributes. But there is a difference. While sensible qualities are limited by maximal differences, affective qualities range between maximal opposites. While the number of sensible qualities is fixed by the differentiation of the sense-organ, the number of affective qualities is indefinitely large; for simple feelings are the subjective complements, not only of simple sensations, but also of compound ideas and of still more complicated ideational processes. And while sensations fall into a number of separate systems, there is but one affective system; tone and color, warmth and pressure are disparate, but "alle einfachen Gefühle bilden eine einzige zusammenhängende Mannigfaltigkeit, insofern es kein Gefühl gibt, von dem aus man nicht durch Zwischenstufen und Indifferenzonen zu irgend einem andern Gefühle gelangen könnte."

Do, then, all these many affective elements fall within "dem allgemeinen Rahmen einfacher Lust und Unlust?" By no means! There are three *Hauptrichtungen der Gefühle*, three dimensional categories, "innerhalb deren unendlich viele einfache Qualitäten vorkommen." These are pleasantness-unpleasantness, excitement-inhibition or excitement-tranquillisation, and tension-relaxation. As a rule, Wundt says, psychologists have paid regard only to pleasantness and unpleasantness, and have relegated the other two affective classes to the emotions. But as emotions arise from the combination of feelings, the fundamental types of emotion must be preformed, *vorgebildet*, in the affective elements.

In cases like this, I always want to trace the motive. Like the lawyer in *David Copperfield*, I assume that in all such

cases there *is* a motive. What was it, then, that led Wundt to his change of opinion?

If my reading of Wundt is correct, the changes that he has made from time to time in his various systematic works have never been due, in any real way, to external causes, but have always represented the climax or culmination of a stage of internal development. The germs of the changes are invariably, I think, to be found in the prior Wundt, and the changes themselves are but the full and self-conscious maturity of ideas that had long been 'incubated,' had long been held in the obscure margin of consciousness. On the other hand, it is possible, at least in most cases, to point with a fair degree of probability to the external cause that brought these obscure ideas to the attentive focus. In the present instance, that external cause appears, very obviously, in the publication of Külpe's *Grundriss*. Let me be clear on this matter, even if I am repetitious! I believe that Wundt would have formulated his new affective theory in any event; the theory was implicit in him and in his previous writings. If Külpe had not given the touch that led to crystallisation, some one else would, sooner or later, have performed the same office. In fact, however, Külpe undoubtedly did furnish the external stimulus,—so that, indeed, we have to thank him, not only for his own *Grundriss*, but in a certain special and limited sense for Wundt's as well.

Let me take you, now, to the first edition of the *Physiologische Psychologie*, the edition of 1874. In general, the exposition is very like the exposition of 1893. But, in 1893, we are told that the affective tone of sensations of the higher senses is a *Stimmungscharakter*, a coloring that they have 'taken on' in virtue of their constant participation in æsthetic ideas. In 1874, the reference to æsthetics comes at the end of the discussion: the fact that sight and hearing have freed themselves of sense-pleasurableness and sense-unpleasurableness fits them to serve as elements in æsthetic effect. They are not grave and dignified and happy and cheerful because they have been æsthetically employed, but their gravity and cheerfulness are what enables us to employ them with æsthetic result. "Lust und Unlust," Wundt concludes, "sind, wie es scheint, nur die von der *Intensität* der Empfindung herrührenden Bestimmungen, während an die *Qualitäten* Gegensätze anderer Art geknüpft sind, welche zwar zuweilen in eine gewisse Analogie mit Lust und Unlust sich bringen lassen, an sich aber doch von diesen letzteren nicht berührt werden." Here is the doctrine of the plurality of affective dimensions plainer and more definite than it was twenty years later; here is, evidently enough, the germ of the doctrine of 1896.

Once more: the chapter from which I have been quoting is

entitled, in 1893, "Gefühlston der Empfindung,"—in 1874, "Sinnliche Gefühle." Is not that significant also? Affection, in 1874, is not an attribute of sensation; it appears in that rôle for the first time in 1880. Affection, in 1874, is a relation, the relation which sensation sustains to consciousness at large. "Als ein nach Qualität und Intensität bestimmter Zustand ist die Empfindung nur im Bewusstsein gegeben; in Wirklichkeit existirt sie daher auch immer nur in ihrer Beziehung zu demselben. Diese Beziehung nennen wir das sinnliche Gefühl."

Clearly, then, the whole of the new affective theory is implicit in the original edition of Wundt's great work. So far from suddenly reversing his attitude to affective processes, he has, in reality, returned to his first systematic position. In other words, the problem with regard to Wundt is not so much that he now makes affection an independent element with a plurality of dimensions and qualities, as rather that he ever did anything else. This problem, too, can be solved; but it is foreign to our present consideration.

We are to examine, in this Lecture, the theory which I briefly outlined a moment ago on the basis of the *Grundriss* of 1896. The theory has been widely and variously discussed, and I cannot attempt to cover the whole of the relevant 'literature.' I shall refer, for the most part, to the earliest statements of it, in the *Grundriss* of 1896 and the *Vorlesungen* of 1897, and to the latest systematic statement in the *Physiologische Psychologie* of 1902.

First of all, then, how does Wundt arrive at his three affective dimensions? How does he prove that there are three, and that these three are pleasantness-unpleasantness, excitement-inhibition, and tension-relaxation? Well! his main reliance is on his own introspection. Wundt is a man of keen sensibility. He writes of feeling *con amore*: he is fond of quoting Goethe's *Farbenlehre*; feeling has played a larger and larger part in his psychological system as time went on; as early as 1874, he had systematised, thrown into diagrammatic form, his affective reactions to colors and tones. So the new theory appears in the *Grundriss* without preface or apology,—“wird einfach als Tatsache eingeführt,” Orth plaintively remarks,—takes its place in the exposition with all the assurance of established fact. Remembering its genesis, its deep rooted and slow growth in Wundt's mind, we need not be greatly surprised. Wundt had said in 1874: “Gelb. . . . regt an, blau stimmt herab;” and had emphasised “das eigenthümliche Gefühl des Aufmerkens” which appears “im Zustande des Besinnens oder der Spannung.” No doubt, it seemed obvious to him in 1896 that the introspective evidence, though not expressed, would be understood,—if indeed the thought of expression ever oc-

curred to him. Now, after several years of criticism, he is more explicit; the *Physiologische Psychologie* introduces the theory by way of definite introspective analysis.

Even in the *Grundriss*, however, Wundt is not simply dogmatic. He explains (a) that a triple classification of the affective elements is required for the distinction of the fundamental types of emotion. Later on, it is true, he declares that a psychological classification of the emotions "nur auf die Qualität des Gefühlsinhaltes gegründet werden kann." The argument has a circular look; affections are classified by reference to emotion, emotions by reference to affection. I think, however, that it is formally sound. Theoretically, emotions may be classified by quality, by intensity, and by temporal course. In practice, intensity and temporal course fail to furnish reliable criteria: hence, emotions must be classified by quality. Qualitative analysis then reveals certain fundamental types of emotion, which must, of course, be preformed in the affective qualities. Emotive classification thus points us back to a particular classification of affections, while affective classification, to be adequate, must necessarily point forward to emotion. Formally, this reasoning is rather a matter of what Fechner would call the 'solidarity' of a system than an instance of merely circular argumentation. Whether it is materially sound is another question,—a question which Stumpf, *e. g.*, would answer with an emphatic negative.

Wundt also brings evidence of an objective sort, the evidence (b) derived from the method of expression. He lays but slight stress on pulse-correlation in the *Grundriss*: "es ist unzulässig die Ausdrucks- der Eindrucks-methode in Bezug auf ihren psychologischen Werth gleichzuordnen." In the *Vorlesungen*, too, the pulse-records are introduced to prove the physiological relationship of the 'lower' to the 'higher' feelings, some time before we reach the distinction of the three affective dimensions. It is not until 1900, in the *Bemerkungen zur Theorie der Gefühle*, that the changes in innervation of heart, vessels and respiratory mechanism — "ein überaus feines Reagens auf die leisesten Aenderungen der Stärke wie Richtung der Gefühle" — are given anything like an independent place in Wundt's argument. Do not fear, now, that I shall plunge you into the technical intricacies of the expressive method, and that the remainder of the hour will be filled with sphygmograph and plethysmograph, pneumograph and dynamograph! Even if that method came into our discussion, I could pass it over with the reminder that, not so long ago, I gave a critical review of it from this platform. But it does not come into our discussion. Grant everything that the most ardent disciples of the method demand, and then ask yourselves: where is the evidence, in these

correlations, that we are dealing with elementary mental processes? What have pulse-curves to say to the question of the irreducibility, the ultimateness in consciousness, of the experiences of excitement-inhibition, tension-relaxation? Wundt himself is careful, in psychological connection, to differentiate "spezifische Beschaffenheit" and "elementare Natur." How can pulse and breathing be relied upon to make the same distinction?

Let us, then, dismiss the expressive method and come back to the *Grundriss*. Had Wundt stopped short at the point which we have now reached; had he stated his theory, shown its usefulness in systematic regard for the classification of emotions, and indicated the correlated differences in the pulse-tracings: his position would, I think, have been stronger than it actually is. But he attempts, further, (c) to connect the three dimensions of affection with the three relations in which a given feeling may stand to the temporal course of mental processes at large. Pleasantness and unpleasantness denote a determinate modification of our present mental state; excitement and inhibition exert a determinate influence upon the next succeeding state; and tension and relaxation are qualitatively determined by the preceding state. "Diese Bedingungen machen es zugleich wahrscheinlich, dass andere Hauptrichtungen der Gefühle nicht existiren."

And yet—quality is the criterion for the classification of emotions, and the classification of the emotions requires three ultimate affective dimensions! Here, surely, we have the fallacy of too many proofs. Wundt, it is true, offers in the *Bemerkungen* a defence of his dual argument. "Es handelt sich hier um Momente, die selbst wieder mit einander zusammenhängen": "[es] kommt hier überall nicht ein Verhältniss von Ursachen und Wirkungen, sondern lediglich ein solches von Beziehungen und Bedingungen in Frage, die sich wenigstens vorläufig durch eine vollständige Analyse aus der Gesamtheit der complexen Bedingungen nicht isoliren lassen." If I understand these passages aright, Wundt's meaning is as follows. 'Consciousness is always exceedingly complex, so that the affective processes are given in complex relations and appear as variously conditioned. Causal analysis is, at present, beyond our powers. We can, however, trace certain relations and follow up certain part-conditions; and our results, different or even incompatible as they may look, are really abstractions from—represent moments of—a single system of causal interrelations. Hence, they may safely be set down side by side.' In the abstract all this may be granted. Still, however, I do not see, in the concrete, how the three affective dimensions can be guaranteed *both* by temporal relations to the course of con-

sciousness *and* by qualitative differences in emotion. The latter are enough, in themselves; the former is, at the best, a matter of reflection, of analysis above the elementary level; and its obvious superfluity tends to cast doubt upon the results of qualitative analysis proper, with which it is brought into agreement. For the rest, it is significant that, in his later writings, Wundt has dropped this principle of temporal relation as a means of affective classification.

In the *Vorlesungen* of 1897 a new principle makes its appearance. After distinguishing the three dimensions of pleasantness-unpleasantness, excitement-tranquillisation, tension-relaxation, Wundt says: "dass es noch andere Hauptrichtungen ausser diesen gebe, scheint mir nach der subjectiven Beobachtung nicht wahrscheinlich. Auch dürften die genannten den allgemeinsten Bedingungen entsprechen, unter denen Gefühle überhaupt entstehen." The dimensions are guaranteed first by introspection, and secondly (*d*) by the threefold character of affective conditions. The conditions are found in the "Empfindungs- und Vorstellungselemente, an die [die Gefühle] gebunden sind." Pleasantness-unpleasantness represent a quality-dimension; excitement-tranquillisation, an intensity-dimension; tension-relaxation, a time-dimension. "Die Bedeutung von Lust und Unlust als 'Qualitätsrichtungen' liegt darin, dass vorzugsweise in ihnen die Wirkungen der qualitativen Eigenschaften des gesammten Bewusstseinsinhalts zum Ausdruck kommen;" and similarly with the other two dimensions. Intrinsically, of course, every affection is a quality, qualitatively different from every other. But the affective qualities of the three dimensions reflect, express, are determined by the quality, intensity and temporal properties of sensations and ideas.

I am not here concerned with the correctness or incorrectness of Wundt's correlation. He has himself changed it, in the *Physiologische Psychologie* of 1902, where pleasantness-unpleasantness represent an intensive, and excitement-tranquillisation a qualitative dimension,—just the reverse of what was said in 1897. I am concerned with the correlation as a principle of classification. There are, Wundt declares, three general conditions of the arousal of feeling: the quality, the intensity and the temporal relations of conscious contents. And the threefold character of the conditions furnishes, along with introspection, evidence that there are but three dimensions of affection. What, then, has become of the spatial relations of conscious contents? The chapter-headings of the *Physiologische Psychologie* tell us that *Sinnesvorstellungen* are of three kinds: intensive, spatial, temporal. Spatial and temporal ideas may be grouped together as extensive; intensive ideas

differ from sensations by the composite nature of their intensity and quality. These intensive ideas are therefore responsible for two affective dimensions, the intensive and qualitative; the temporal ideas are responsible for a third dimension, the temporal; only the spatial ideas are excused from affective duty. I argue, then, in this way. In so far as affective classification is dependent upon the various forms of idea, in so far Wundt's classification is inadequate: for the spatial form of idea is as important, in the mental life, as the intensive or the temporal. And if there is no such thing as a spatial dimension of affective qualities, then we may justly doubt whether the principle of classification is sound, and whether any conclusion as to the number of affective dimensions may be deduced from it. Remember, I am not arguing on a matter of fact; I am disputing the application of a principle.

Wundt replies, in the *Bemerkungen*, that he has left spatial ideas out of account for two reasons: first, "weil sich mir Beziehungen derselben zu bestimmten Gefühlsrichtungen weder in der unmittelbaren subjectiven Beobachtung noch bei der Analyse der Ausdrucksbewegungen darbieten;" and secondly, "weil es mir scheint, dass man sehr wohl bei jedem Affect qualitative, intensive und zeitliche Eigenschaften unterscheiden kann, während ich mit dem Ausdruck, der Zorn oder die Freude habe irgend eine räumliche Ausdehnung, keinen rechten Sinn zu verbinden weiss." The first of these arguments misses its mark for the reason that, in the *Vorlesungen*, the distinction of three general conditions of feeling, their connection with three forms of idea, is offered as *additional* evidence, over and above 'subjective Beobachtung,' for the finality of Wundt's classification. "*Auch* dürften die genannten Hauptrichtungen den allgemeinsten Bedingungen entsprechen unter denen Gefühle überhaupt entstehen." I object to Wundt that the one of his criteria is invalid, and he rejoins that the other is valid! The second argument goes equally wide. I did not assert that an emotion possesses spatial attributes, that an affection may be 'extended,' but that certain ideas possess spatial attributes and relations,—and that, if we are classifying affections by reference to the forms of ideas, then these spatial properties must be taken into account, as well as the intensive, qualitative and temporal. I use the phrase 'spatial dimension of affective qualities' precisely as Wundt uses the phrase 'temporal dimension,'—to signify affective qualities that are dependent upon ideational extension. I acquitted Wundt, just now, of the charge of circularity; I am afraid that I must here charge him with the logical error which is known in the vernacular as 'missing the point.'

In sum, therefore, Wundt's three affective dimensions are

supported, primarily, by his own introspection, while he has appealed, further, to the necessities of emotive classification; to the results of the method of expression; to the temporal relations of the affective processes; and to their general conditions in consciousness. The first of these arguments I take to be sound, both formally and materially, though I do not arrive by it at the conclusion which Wundt has reached. The second must be pronounced irrelevant; the third has been given up by Wundt himself; the fourth we have seen to be logically defective and psychologically indefensible.

We have now to consider the theory on the basis that remains for it: introspection of the simple sense-feelings and qualitative analysis of the emotions. I find a difficulty at the outset, in Wundt's terminology. You may have been surprised that when I have had occasion to mention Wundt's category of 'excitement,' I have paired it with 'inhibition' or 'tranquillisation,' rather than with the more usual term 'depression.' I have throughout been quoting Wundt's own words, but it is true that in the *Grundriss* 'depressing' is given as an alternative to 'tranquillising,' and that in the *Physiologische Psychologie* 'Depression' is suggested for the higher degrees of 'Beruhigung.' Wundt can, of course, do no more than take language as he finds it. But I think that his actual choice of words bears witness to a conflict, in his thought, between two purposes: the purpose of transcribing his introspections, and the purpose of maintaining the typical affective movement between opposites. Pleasantness and unpleasantness, *Lust* and *Unlust* are opposite in name, as well as in nature. What of *Spannung* and *Lösung*? In English, 'relaxation'—which, I suppose, is the nearest equivalent of *Lösung*—suggests rather the remitting or resolving of tension than its qualitative opposite: this latter would be better expressed by 'relief.' Possibly *Lösung* has for Wundt an implication of positive relief, of *Erleichterung*,—though it has not for me, nor for German friends of whom I have made enquiry. Wundt speaks also of the *Befriedigung*, the fulfillment, of expectation; but that term brings us perilously near to *Beruhigung*. The chief difficulty, however, arises in connection with the remaining dimension. What is the opposite of *Erregung*? Sometimes Wundt says *Hemmung*, sometimes he says *Beruhigung*, sometimes *Depression*. The antithesis *Erregung-Hemmung* comes from nerve physiology; *Erregung-Depression* comes, evidently, from observation of the emotions, normal and pathological; *Erregung-Beruhigung* appears to be the analogue of *Spannung-Lösung* and to convey the same suggestion. But what is in introspection the *felt* opposite of *Erregung*? I cannot myself identify the feelings of *Hemmung*, *Depression*, *Beruhigung*; I

cannot feel them as degrees of the same thing, as lying in the same affective dimension; I cannot always distinguish between *Beruhigung* and *Lösung*. *Erregung*, 'excitement,' seems to me to feel very differently in different contexts, to be an equivocal term. It is easy to say that such considerations are mere 'Wortklauberei,' but I am trying to express a real introspective difficulty.

If, then, I am to judge others by myself, this uncertainty in the meaning of terms may be at least a partial reason for the fact that Wundt's classification, despite its claim to finality, does not always command the assent even of those who agree with its spirit and intention. Gurewitsch, *e. g.*, in his *Theorie der sittlichen Gefühle*, makes a fourth affective category for *Streben-Widerstreben*. Vogt, again, ranges feelings of activity and passivity alongside of pleasantness-unpleasantness, arousal-depression, tension-relaxation. Wundt identifies *Strebungsgefühl* with *Thätigkeitsgefühl*, and makes it a total feeling, compounded of strain and excitement. Royce, on the other hand, is disposed to think that two dimensions—pleasantness-unpleasantness and restlessness-quiescence—are adequate to the facts of the affective life. I do not at all mean that these differences of opinion are fatal to the theory. But they testify—do they not?—to a lack of precise formulation. Royce throws two of Wundt's dimensions into one; Vogt and Gurewitsch split the same two into three.

The single dimension about which Wundt himself seems, from the first, to have felt no doubt is that of *Spannung-Lösung*. The other two dimensions, as I pointed out just now, have actually exchanged places in his system. And the same uncertainty characterises certain of his observations in detail. Let me give you an instance. In the *Bemerkungen* of 1900, Wundt writes: "ich wüsste . . . wenn ich vor die Wahl gestellt wäre, irgend einen dieser Eindrücke dem andern vorzuziehen, absolut nicht zu sagen, ob mir das rein spektrale Blau oder das Roth . . . angenehmer sei." This does not mean that the two colors would be equally pleasant. "Ich würde eben einem solchen Verlangen immer nur die Aussage gegenüberstellen können, dass diese Eindrücke an sich mit Lust und Unlust nichts zu thun haben." The passage is a little startling, when one remembers that work had already been done upon colors—and colors that were not spectral colors—by the method of impression! Two years later, now, we have the following: "wenn ich zuerst ein spektralreines leuchtendes Roth und dann ein ebensolches Blau im Dunkelraum betrachtete, so kann ich nicht umhin, beide als im hohen Grad erfreuende, also lusterregende Eindrücke zu charakterisieren." True, the sentence is concessive; the next begins with a

'gleichwohl,' but it is, nevertheless, in flat contradiction to the former quotation. If two impressions are highly pleasant, they *can* be compared as regards pleasantness, and a judgment of greater, less or equal can be passed upon them. Similarly conflicting statements are made concerning high and low tones. I readily acknowledge, again, that these minor inconsistencies are in no sense fatal to the theory; indeed, Wundt has so often emphasised the importance for feeling of the "ganze Disposition des Bewusstseins" that I feel reluctant, as it were a morsel ashamed, to dwell upon them. Still, they are there! And it is not reassuring to find that the dimension *Spannung-Lösung* owes its exceptional position, the stability of which I spoke above, to its systematic connection with the doctrine of apperception. It must have occurred to many of you, when earlier in the Lecture I was arguing the claims of space as a condition of feeling in consciousness, to ask—what, then, after all, are the claims of time? Since, in the psychology of sensation, duration and extension are, both alike, to a very large extent equivalent to, interchangeable with intensity, why should they not be bracketed with intensity as the conditions of one and the same affective dimension? We should then have something like Royce's classification: pleasantness-unpleasantness, conditioned upon all the 'qualitative' attributes of sensation, and excitement-quiescence conditioned upon all the 'intensive.' Now Wundt recognises the equivalence, under certain circumstances, of intensity and duration. "Insbesondere kann die Lust-Unlustkomponente [bei längerer Einwirkung auf das Bewusstsein] ganz dieselben Veränderungen erfahren, die auch die Steigerung der Intensität mit sich führt." But feelings of *Spannung* and *Lösung* are "die spezifischen, für die Aufmerksamkeitsvorgänge charakteristischen Elemente." "Da aber Apperception und Aufmerksamkeit zeitlich sich entwickelnde Vorgänge sind, die zugleich in einer bestimmten zeitlichen Folge wechseln, indem jede Lösung eine vorangegangene Spannung fordert, und eine neue Spannung wiederum nur auf Grund vorangegangener Lösungen einsetzt, so sind diese Gefühlskomponenten enger als die übrigen an den zeitlichen Ablauf der Bewusstseinsvorgänge gebunden." Any serious doubt, therefore, about Wundt's doctrine of attention and apperception must at the same time jeopardise this third dimension of simple feeling.

So far, I have spoken only of the three affective dimensions; I have said nothing of the multitude of elementary qualities which the dimensions are held to include. "Die qualitative Mannigfaltigkeit der einfachen Gefühle ist unabsehbar gross und jedenfalls viel grösser als die Mannigfaltigkeit der Empfindungen." So the *Grundriss*,—which proceeds to give two

reasons. First, every sensation of the multidimensional sensation-systems belongs to more than one affective dimension. Secondly and more importantly, the feelings that attach to sensation-complexes, intensive, spatial and temporal ideas, and to certain stages in the temporal course of emotion and volition, are nevertheless themselves irreducible, and must therefore be counted among the elementary affective processes. You will notice that these reasons are phrased in the language of a special psychological system, though the appeal to introspection is implied. Later on, the appeal becomes explicit; we are reminded that, *e. g.*, the feeling of gravity, *Ernst*, "in verschiedenen Fallen in seiner Qualität wieder variiren kann." In the *Vorlesungen*, the doctrine of the multiplicity of affective qualities follows naturally from the doctrine of the *Totalgefühl*. The *Physiologische Psychologie* relies upon an 'aufmerksame Selbstbeobachtung.' We are apt to overlook the great variety of the feelings, partly because they are intimately bound up with the objective contents of consciousness, partly because we have no words to express them. "Angesichts der [an der Hand des vergleichenden Verfahrens der Eindrucks-methode] ausgeführten Analyse scheint es mir in überwiegenden Masse wahrscheinlich, dass die sechs Grundformen . . . eben nur *Grundformen* sind, von denen jede einzelne eine sehr grosse Mannigfaltigkeit im ganzen verwandter, aber dabei doch von Fall zu Fall nuancirter Einzelgefühle unter sich begreift."

There can be no manner of doubt that, in this matter of the number of the affective qualities, the psychological pendulum has been swinging, of recent years, in the direction that Wundt has taken. Ladd emphatically repudiates the view that "'pleasure-pains' are exhaustive of the entire quality of the feeling-aspect of consciousness." The theory is simplicity itself: "but simplicity, in the interests chiefly of biological and experimental psychology, 'gone entirely mad.'" I do not know whether Ladd felt pleased or pained that he had written this last sentence, when two years later he read Wundt's *Grundriss*. He says himself, however, that "almost all mental states which are marked by strong feeling in the case of developed minds are *mixed* feelings." At any rate, he works resolutely through the sense-departments, in 1894, and makes out a long list of elementary processes. James, in the same year, remarks that "there are infinite shades and tones in the various emotional excitements, which are as distinct as sensations of color are, and of which one is quite at a loss to predicate either pleasant or painful quality." This position is, of course, entirely compatible with a dual view of *Lust-Unlust*, of "the primary *Gefühlston*:" indeed, the two doctrines seem to me to appear, side by side, in James' own exposition. Nevertheless,

the passage may fairly be cited in the present connection. Lipps, again, working as it were from the opposite pole to Wundt, has arrived, as we all know, at a very complicated classification of the feelings. Stumpf has expressed the opinion, as against Külpe, that "sinnliche Annehmlichkeit" and "sinnliche Unannehmlichkeit" cover "eine grössere Mannigfaltigkeit von Gefühlsqualitäten." This array of convictions is imposing, even if there are authorities—Höfding, Külpe, Jodl, Ebbinghaus, Lehmann, Rehmke—upon the other side.

The fact is, of course, that the ultimate question of a previous Lecture, the question of the criteria of affection, has not been settled. The parties to the present controversy do not really 'feel' differently; but they approach the problem with a certain attitude towards affective process, with a certain general view of the status of feelings in consciousness. Ebbinghaus says outright that Wundt and Jodl, *e. g.*, are 'not talking of the same things.' Orth believes that Wundt's theory is the outcome "seiner ursprünglichen Auffassung des Verhältnisses zwischen Empfindung und Gefühl." Ladd writes with a sort of ethical, even religious, atmosphere upon him: how can you compare the pleasure of cheese and beer with the pleasure of seeing a good *Hamlet*? Lipps considers the feelings as modes of reference to the self; feelings are "Ichinhalte oder Ichqualitäten." Stumpf adopts a sensationalist view of the sense-feelings; and in sensation qualitative differentiation is obvious enough. James is concerned with the varieties of emotive experience, and his protest against the 'hackneyed psychological doctrine' that pleasure and pain are the essence of emotion comports, as I have pointed out, with a strictly dualistic view of the affective qualities proper. It is not that our affective experience is radically different, but that we approach it from different directions, see it under different angles, assimilate it in terms of our systematic associations.

I do not mean that the point at issue is a mere *Etikettenfrage*. It is much more than that. Our decision 'makes a difference,' as the pragmatists say, to the whole structure of our psychological system. And it must be remembered that Wundt does not acknowledge any other methods than those employed by the dualists, and would not acquiesce in the statement that his results are of another order. He comes within our universe of discourse; he invites argument. I therefore proceed to argue: and I take as ground for argument an illustration which he employs on more than one occasion,—the feeling which attaches to the common chord *c-e-g*.

Let me remind you, first, of Wundt's doctrine of the *Totalgefühl*. A compound feeling, a feeling due to the confluence of a number of elementary feelings, is always psychologically

simple in the sense that it has its own irreducible quality, but may also permit the distinction of its various components. "In jedem derartigen Gefühl lassen sich *Gefühlscomponenten* und eine *Gefühlsresultante* unterscheiden." The components Wundt terms 'partial feelings,' the resultant, 'total feeling:' we have had an instance already in the 'feeling of activity' which results from the compounding of tension and excitement. The compound feeling thus bears a close resemblance to the formation which, in the sphere of tonal sensation, is called a fusion; Wundt speaks, in the *Physiologische Psychologie* of 'affective fusions.' There are degrees of affective, as there are degrees of tonal fusion; the partial feelings may appear simply as an undifferentiated coloring of the resultant, or may maintain their individuality, though in a subordinate position, alongside of the total feeling.

After this preface, we are ready to listen to the three tones. To prevent a swamping of the partial feelings by the total feeling,—the highest degree of affective fusion,—we take the tones separately in succession, and observe how they 'feel' in isolation. The tone *c*, heard by itself, affects us, Wundt says, by way of a 'calm seriousness' or a 'quiet cheerfulness;' it brings out feelings of two dimensions, pleasantness-unpleasantness and excitement-tranquillisation. The other two, *e* and *g*, will do the same,—though the affective qualities will be somewhat different. If, now, we put the tones together in pairs, every pair will give us a compound feeling: we have the three total feelings of *ce*, *eg*, *cg*, accompanied or colored by the partial feelings which we have compounded. And if the conditions are favorable for observation, we should be able to distinguish a fivefold feeling in connection with every pair; the two dimensions of the two partial feelings, and the total feeling. Now let us sound all three tones simultaneously. We have the total feeling of *c-e-g*; we have three relative total feelings, or 'partials of the second order,' as Wundt calls them,—the feelings of *ce*, *eg*, *cg*; and we have the 'partial feelings of the first order,' the six elementary feelings aroused by *c*, *e* and *g*. The feeling of *c-e-g* is a tenfold complex. Do not forget that such a feeling is, for Wundt, an "einheitliche Mannigfaltigkeit;" do not forget that the partial feelings may, more or less completely, have forfeited their independence. But, with all allowance made, ask yourselves if you experience anything like the body of feeling that, on Wundt's theory, you 'ought' to experience. Suppose that, in spite of our precautions, affective fusion has reached its highest degree; let the partials of the first order disappear altogether, as separate components, and let them remain only as a vague coloring of the whole affective impression. Now your compound feeling should be a

fourfold complex. Surely, it is not : surely, the feeling lacks the depth, the solidity, that a feeling thus compounded must possess : surely, you can describe the chord in no other terms than 'slightly pleasant,' 'moderately agreeable.'

I think that it is fair to test the theory in this way, by the judgment of a group of psychologically trained observers, seeing that Wundt has laid the observation before the psychological public in two of his books. I have, for myself, repeated the test often and again, and have varied it in half a dozen ways: always, while the chord remains a single impression, a sensible fusion out of musical setting and so far as possible freed from musical significance, I get the same meagre affective results.

If, now, Wundt retorts that in this and like instances we are feeling-deaf and feeling-blind, may we not suggest, on our side, that he is organically anæsthetic? The lack of interest that Wundt shows in the organic sensations has always been a source of wonderment to me. Take the new edition of the *Physiologische Psychologie*. Here is a total of 2,035 pages. Of these 45 are given to *Tast- und Gemeinempfindungen*; the *Gemeinempfindungen* alone, which I now have principally in mind, receive four, two and a half of which are devoted to pain. Of course, there are all sorts of scattered references. But look in the index under *Organempfindungen*, *Gemeinempfindungen*, *Niedere Sinne*, *Gelenkempfindungen*, *Muskelsinn*,— what you can think of. Aside from *Bewegungsempfindungen* and *Augenbewegungen* there is surprisingly little. Meumann makes a similar complaint with regard to Nagel's *Handbuch*. "Vermisst hat der Referent, dass den inneren Empfindungen (*Organempfindungen*) kein ausführlicheres Kapitel gewidmet wird; die gegenwärtige Physiologie scheint sich mit der Frage der Sensibilität der inneren Organe nicht mehr viel zu beschäftigen." Now I personally believe that the organic sensations play an important part, not only in feeling and emotion, but in many other departments of the mental life: in the formation of sensory judgments, in the mechanism of memory and recognition, in motives to action, in the primary perception of the self. It is true that, as compared with what we know of sight and hearing, our knowledge of the organic sensations is scrappy in form and small in amount; that is why I have said, in another connection, that "of all problems in the psychology of sense which are now before us, the problem of the nature, number and laws of connection of the organic sensations appears to me to be the most pressing." Let me add, now, that if any one of you is thinking of a piece of work in this general field, he would do far better, in my opinion, to start out from the side of the organic sensations than to succumb to the fascinations of pneumograph and sphygmograph.

Well! I believe that organic sensations are responsible for the dimensions of excitement-depression and tension-relaxation. On this point I can claim the support of Ebbinghaus and, I suppose, of all those who accept the James-Lange theory of emotion.

Stumpf, too, declares that he cannot regard them as "Elementarerscheinungen," though he offers no further analysis. But I believe, also, that organic sensations are responsible in certain cases for a *Nuancierung*, a shading and coloring, of feelings in the dimension of pleasant-unpleasantness. I say 'in certain cases,' for two reasons. First, it is entirely possible that this *Nuancierung* is a matter, not of simple sense-feeling, but of association, of emotive residua. Secondly, however, I do not think that the coloring and shading is as universal as Wundt asserts. Vogt, whose method of suggestion led him to the distinction of four pairs of feelings, is unable to discover it. Orth cannot find it, in the introspections that he educes by the *Reizmethode*. Störing's observers, on the other hand, report a qualitative difference between *Stimmungslust* and *Empfindungslust*; but though this is, so to say, a gross difference, the expressions used are singularly disappointing. We read, in some detail, of extensive differences, differences in intensive fluctuation, differences of excitement and passivity; but on the side of quality we have only "*Stimmungslust ist gleichartiger*," and the dogmatic statement "*Zwischen Stimmungslust und Empfindungslust besteht qualitative Differenz*." I, myself, have never observed a qualitative differentiation of pleasantness-unpleasantness, under experimental conditions; and when I observe a difference in everyday life,—a difference on the level of the sense-feeling,—I seem to find a reason for it in concomitant organic sensations.

I have sought, on two occasions, to put Wundt's theory to an experimental test. The method employed was the method of impression, in Cohn's form of paired comparisons. The procedure, in brief, is as follows. A series of stimuli—tones or colors or rhythms—is laid out, and the stimuli are presented to the observer two at a time, care being taken that every member of the series is paired with every other member. The observer has to decide which of the two stimuli shown him is the more pleasant, the more unpleasant, the more exciting, the more depressing, and so on. If colors are exhibited, he points to right or left, as the case may be; if tones are used, he notes down '1' or '2,' according as the first or the second stimulus is preferred. The work is laborious, and the method consumes a large amount of time. We have, however, the great advantage of a twofold control, objective and subjective.

The subjective control is afforded, of course, by the intro-

spection of the observers. The introspective task is extremely simple; the observer has merely to be passive, to let himself go, to allow the stimuli to take affective possession of him; and then to indicate, in the particular instance, which of the two makes the stronger impression. Moreover, since the introspective experience within a series is cumulative, all of the same kind, the observer is able, in the intervals between successive series, to give a general account of his method of judgment, of the nature of his affective reaction. The objective control is afforded by the course of the affective judgments themselves. If, *e. g.*, pleasantness and unpleasantness are really affective opposites, then the 'curves' or tracings which indicate the distribution of judgments in parallel, 'pleasant' and 'unpleasant' series, should be diametrically opposed: a color which stands high on the scale of pleasantness should stand low on the scale of unpleasantness, and contrariwise. If excitement-depression and tension-relaxation also denote affective opposites, then their 'curves' should be similarly opposed.

The stimuli chosen were colors, musical tones, and groups of metronome beats given at varying rates. The two former had been specified by Wundt as productive of excitement-depression, the latter as productive of tension-relaxation. My idea was, on the subjective side, to test by their means the immediacy of reaction in these dimensions. In the case of pleasantness-unpleasantness, you cannot say what the basis of your judgment is, otherwise than that it resides in the stimulus; the one of two colors or two tones *is* more pleasant than the other, just as directly as it is bluer or louder. Suppose, then, that colors and tones bring out equally prompt and unmediated judgments of excitement-depression, and that metronome intervals bring out equally prompt and unmediated judgments of tension-relaxation: then we shall have some ground for the acceptance of the two new affective dimensions. Suppose, on the other hand, that the judgments of excitement and tension are forced or difficult, mediated by associations or by organic sensations: then we shall have an introspective differentiation of these judgments from those of pleasantness-unpleasantness.

On the objective side, I argued in much the same way. Suppose that the curves, of which I spoke just now, show typical differences,—so that the distribution of judgments of pleasantness takes one course, that of judgments of excitement another, and that of judgments of tension a third,—while still the curves of pleasantness and unpleasantness, of excitement and depression, and of tension and relaxation are related as opposites: then, again, there will be ground for the acceptance

of Wundt's dimensions. Suppose, on the contrary, that the curves of excitement and of relaxation agree with the curve of pleasantness, and the curves of depression and of tension with the curve of unpleasantness: then, since the pleasant-unpleasant dimension is not in dispute, we have a strong indication that that alone is fundamental, and that the other two dimensions are affective only because and in so far as pleasantness and unpleasantness are involved in them.

The results of the first investigation, in which colors and musical tones were tested for pleasantness-unpleasantness and excitement-depression, and metronome intervals for pleasantness-unpleasantness and tension-relaxation, were published in the Wundt *Festschrift*; those of the second, in which the same tones and intervals were tested for all three of the Wundtian dimensions, were published by Hayes in the *American Journal of Psychology*. They may be summed up under three headings.

(1) Judgments of pleasantness and unpleasantness are direct, easy and natural. The qualities themselves appear to the observers to be simple and homogeneous, identical throughout the experiments. Their opposite character is vouched for both by introspection and by the course of the curves.

(2) Judgments of excitement are less direct, and the term is equivocal. If it is taken as the opposite of depressing melancholy, its curve agrees with that of pleasantness; if it is taken as the opposite of tranquility or soothing calm, its curve agrees with that of unpleasantness: the reverse curves then agree with those of unpleasantness and of pleasantness, respectively. If, in default of special instruction, the observer vacillates between the two meanings of the word, the curve shows a vacillating character, partly 'pleasant' and partly 'unpleasant': the period and nature of the affective oscillation are vouched for by introspection. Judgments of depression are, in their turn, distinctly less direct than those of excitement, and are often associatively mediated. There is no evidence of a dimension of excitement-depression, and none of a number of exciting and depressing qualities.

(3) Judgments of tension are easy, but tension is described throughout in kinæsthetic terms. Increasing tension means, uniformly, increasing unpleasantness, and the curves of the two classes of judgment correspond. Relaxation may be taken as the opposite of unpleasant tension, in which case its curve agrees with the curve of pleasantness, or may be identified with depression. Nowhere is there evidence, in this third case either, of a new affective dimension or of specific qualities.

Of course, these results are not 'conclusive.' For one thing, the experiments are too few. For another, they were obtained in a single laboratory, and that a laboratory from which criti-

cism of Wundt's doctrine had already proceeded. For a third, the argument upon which the experiments rest is not demonstrably valid. It would, I think, be a very strange thing if three sets of stimuli should affect a number of observers by way of excitement-depression (or tension-relaxation) precisely as they do by way of pleasantness-unpleasantness,—but nobody can prove that such a state of affairs is, on the plural theory, impossible. Were I a champion of affective plurality, I should unhesitatingly urge these objections to the work, and I have no desire to slur them over because I am on the other side. Nevertheless, the results are experimental evidence: Wundt cannot, in the future, appeal to the method of impression as confidently as he has appealed in the past. And if our investigations are compared with those of Brahn and Gent, upon which Wundt relies in the *Physiologische Psychologie*, it will appear, I am very sure, that the critical sauce meted out to the goose must be considerably strengthened for the gander.

If now, in conclusion, I may give, with all due modesty, my own reading of the situation, it is this: that Wundt's tridimensional theory of feelings shows, as it were in typical form, the peculiar features that distinguish his psychology at large. Wundt has, in an eminent degree, the power of generalisation, and his generalisations cover—as generalisations oftentimes do not—an encyclopædic range of detailed knowledge. But the exercise of this very power leads him to put a certain stamp of finality upon his theories, as if questions were settled in the act of systematisation. You know what I am thinking of: the theory of space perception, the theory of attention, the definition and demarcation of psychology itself. The affective theory which we have been discussing is typical, then, both for good and for bad. It is good, in that it gives rounded and complete expression to a psychological tendency that, in many minds, has been struggling for utterance. It is bad, in that it offers a solution, ready made, of problems which in actual fact are ripe only for preliminary and tentative discussion. Like those other theories of attention and of space perception, it represents the culmination of an epoch of psychological thought; but, like them again, it is rather the starting point for further enquiry than the statement of assured psychological result. On the whole, I take it as matter of encouragement that generalisation has been at all possible. What has been done, provisionally, at a lower level of knowledge, can be done again, and better done, at a higher. In the meantime, we must not be dogmatic, we must not be too impatient for results, we must not set theory above observed fact: recognising to the full the difficulty and the merit of constructive effort, we must use all the weapons in our critical armory against ourselves as against others, and against others as against ourselves.